

MODELS: Pratt & Whitney Military Models R-985 Series

T.C. NUMBER: 5E-1

Military model Type - 9RA direct drive	R-985-5	R-985-13,-50	R-985-17,-19, -23,-48,-AN- 1M1,-AN-2,-AN- 4,-AN-6,-AN-6B, -AN-8,-AN-10, -AN-12,-AN-12B, -AN-14B	R-985-25,-27	R-985-39, -39A,-AN-1, -AN-3, -AN-14BM1	R-985-AN-5
Ratings:						
Maximum continuous, hp, rpm, in. lg., at:						
Rated pressure		400-2200-	400-2200-	450-2300-	450-2300-	450-2300-
altitude (ft.)		33.5-5000	33.5-5000	37.0-1500	37.0-1500	36.5-2300
S.I. pressure	350-2100 (F.T.)	400-2200-	400-2200-	450-2300-	450-2300-	450-2300-
altitude (ft.)		34.5-S.L.	34.5-S.L.	37.5-S.L.	37.5-S.L.	37.0-S.L.
			(or for AN Series only)			
			450-2300-			
			35.5-3500			
			450-2300-			
			36.5-S.L.			
Take-off (5 minutes), at S.L. pressure	350-2100 (F.T.)	400-2200-34.5	400-2200-34.5	450-2300-37.5	450-2300-37.5	450-2300-37.0
altitude		or	or			
Fuel (minimum grade aviation)	80	450-2300-36.5	450-2300-36.5			
Bore and stroke, in.	5-3/16 x 5-3/16	80/87				
Displacement, cu. in.	985	(See NOTE 6)				
Compression ratio	6.2:1	--	--	--	--	--
Weight (dry), lbs.	See NOTE 5	6:1	--	--	--	--
C.G. location		--	--	--	--	--
Forward of mounting face, in.	7.3	--	6.7	7.3	6.7	6.6
Below crankcase C.I.	.2	--	--	--	--	--
Supercharging						
(impeller gear ratio)	7.1:1	10:1	--	--	--	--
Carburetion	Stromberg NA-R9A	Stromberg NA-R9B or -R9C2	--	--	--	--
Venturi	--	2-3/4	--	2-5/8	--	2-3/4
Ignition	Scintilla VAG-9D	Scintilla SB9R or Bosch SB9R-U2, 3	--	--	--	Bosch SB9R-U3 magnetos
Ignition timing, degrees BTC	25	--	--	--	--	--

NOTE 1. Maximum permissible cylinder head, barrel and oil inlet temperatures, 550 degrees F., 335 degrees F., and 200 degrees F., respectively, except for 500 degrees head temperature on Model -AN-5.

NOTE 2. Pressure limits - normal operation

	Maximum	Minimum
Fuel pressure	6 psi.	2 psi.
Oil pressure	100 psi.	50 psi.

NOTE 3. When incorporated in certificated aircraft, the engine nameplate should be stamped, "CAA Spec. No. 5E-1." If there is no room for this information on the existing nameplate, such information may be stamped on a plain thin metal plate attached beneath the existing plate by at least two of the mounting screws. When a new model designation is required, because of changes to the engine, the new designation should be added to the nameplate.

NOTE 4. The following accessory drives are provided:

	Direction of Rotation (Clockwise or Counter-Clockwise)	Speed Ratio (Times Crankshaft Speed)	Maximum Torque (in. lbs.) Continuous	Static	Maximum Overhang (in. lbs.)
*Starter	CC	1.0	2200	10000	180
Generator (None on -AN-5)	C	1.5	100	300	183
Generator (optional on all models - see P&WA Service Bulletin No. 1118)	C	2.0	150	900	183
*Fuel pump	CC	1.0	150	450	10
Vacuum pump (excludes AN series)	C	1.5	100	800	10
*Hydraulic or vacuum pump (includes AN series only)	C	1.5	100	300	10
Hydraulic or vacuum pump (AN-5 only)	C	1.5	100	800	10
Vertical auxiliaries (2 provided)	CC	1.0	150	450	10
Propeller governor (use vertical auxiliary drive)					

*NOTE: Spline type fuel pump and hydraulic pump drives are provided on the AN series and models -25 and -50. Other models incorporate tongue and groove pump drives. Three tooth starter jaws were supplied on all models, except -48; AN-2, -4, -6, -8, -12, which have 12 tooth starter jaws and either type on the -50.

NOTE 5. The above engines incorporate the following individual characteristics:

R-985 Model	Wt. dry lbs.	Similar Certificated Wasp Jr.	Characteristics
-5	684	None	Manual grease valve gear lubrication, no hydraulic propeller

			provisions, and no crankshaft vibration dampers, Scintilla magnetos.
-13	640	None	Same as -5 except for miscellaneous changes and provision for constant speed or two position hydraulic propeller. NAR-9E or 9C2 carburetor.
-17,-19,-23	648	SB	Manual rocker oiling system, has 4-1/2 and 9th order crankshaft vibration dampers, provision for hydraulic two position or constant speed propeller and optional magnesium or aluminum nose and accessories housings, Scintilla magnetos and NAR-9B carburetor and tongue type accessory drives.
-25	685	T1B2	Similar to -17 except provision for external automatic rocker oiling and splined type vacuum and fuel pump drives.
-27	685	T1B2	Similar to -25 except provisions for manual rocker oiling system and tongue type accessory drives.
-39	674	T1B3	Similar to -AN-1 except 2:1 generator drive.
-39A	674	T1B3	Similar to -AN-3 except 2:1 generator drive.
-48	664	T1E2	Similar to -27 except NAK-9C2 carburetor.
-50	664	SB2	Similar to -25, NAK-9B or -9C2 carburetor.
-AN-1	668	T1B3	Automatic internal rocker oiling system, 4-1/2 and 9th order crankshaft vibration dampers. Provision for two position and constant speed hydraulic propeller, magnesium nose and accessory housings. Bosch magnetos. NAR-9B carburetor.
-AN-1M1	668	T1B3	Similar to -AN-1 except has NA-R9B or NA-R9C2 carburetor with 2-3/4 inch venturi and has -AN-4 ratings and limits.
-AN-2	668	B5, SB3	Similar to AN-1 except NAR-9C2 carburetor setting and ratings.
-AN-3	668	T1B3	Same as AN-1 except has aluminum housings.
-AN-4	668	B5, SB3	Same as AN-2 except has NA-R9B carburetor.
-AN-5	684	B4	For installation only with crankshaft vertical. Otherwise essentially similar to AN-1 except for lubrication system and carburetor elbow differences.
-AN-6, -6B	676	B5, SB3	Similar to AN-2 except has different carburetor setting; AN-6B differs additionally by having 3-tooth starter jaw instead of 12-tooth.
-AN-8	668	B5, SB3	Similar to AN-2 except aluminum housings.
-AN-10	682	SB3	Similar to AN-4 except for aluminum cases.
-AN-12, -12B	714	B5, SB3	Similar to AN-6 and -6B respectively, except aluminum housings.
-AN14B	676	B5, SB3	Similar to AN-4 except optional aluminum or magnesium housings, and has provision for feathering type hydraulic propeller.
-AN-14BM1	676	T1B3	Similar to AN-14E except has AN-1 or AN-3 carburetor, carburetor settings and ratings.

NOTE 6. All 400 hp ratings listed above are eligible with 80 octane aviation fuel. All ratings shown above are eligible with grade 80/87 fuel. Where this specific grade is not available, the next higher grade, 91/96, should be used with the 450 bhp ratings. Models R-985-25, -27, -AN-1 and -AN-3 are eligible at the following 400 hp ratings on 80 octane aviation fuel:

Maximum continuous	400-2300-33.0-5300; 400-2300-34.5-S.L.
Take-off	400-2300-34.5-S.L.

NOTE 7. The following spark plugs are approved on these engines: AC HSR83P, HSR86, SR83P, S86R; Autolite SH2K, SH2M, SH20, SH20A; BG 417S, SS485A, RE485S, 706SR; Champion C26S, C27S, ED41N, EM41N, KC26S, FED39N, RHD39N, REM39N, RHM39N, REM40E, RHM40E.